American
GAS JOURNAL
Formerly American Gas Light Journal
EST. 1859

VOL. 116, NO. 21
WHOLE NO. 3351

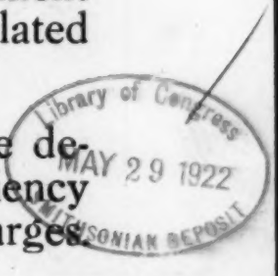
NEW YORK, SATURDAY, MAY 27, 1922

Subscription $3 per year
$4 Canada $5 Foreign

BARTLETT HAYWARD

THE Bartlett Hayward Company has created and developed such an organization and plant that you will benefit by having our engineering department study your equipment needs, and advise concerning contemplated requirements.

Bartlett Hayward equipment can be depended upon to produce the utmost efficiency with the lowest maintenance and labor charges.

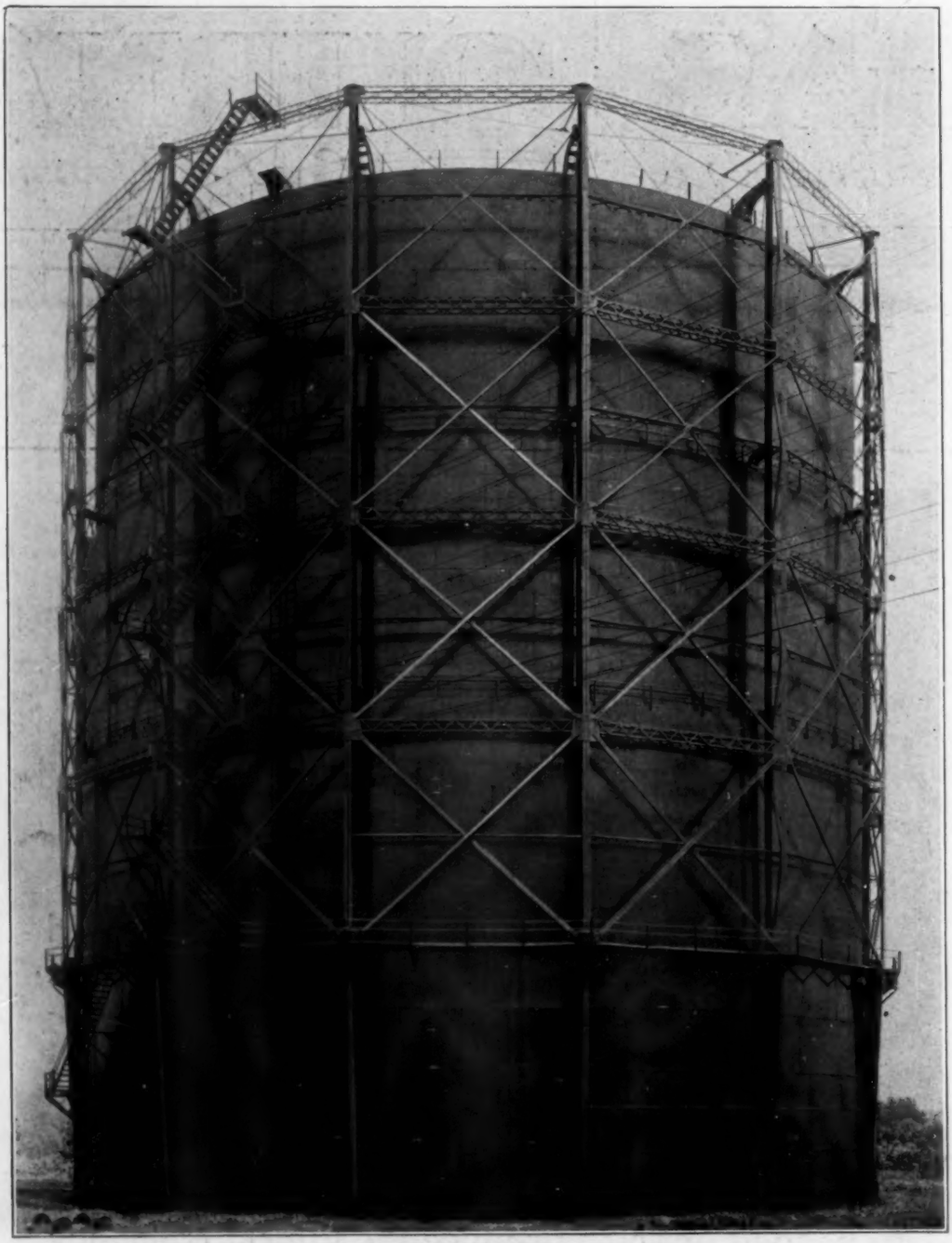


The BARTLETT HAYWARD COMPANY

Engineers and Founders

BALTIMORE NEW YORK

INDEX TO CONTENTS, PAGE 4 ADVERTISERS' INDEX, PAGE 35



Bulletin J-240

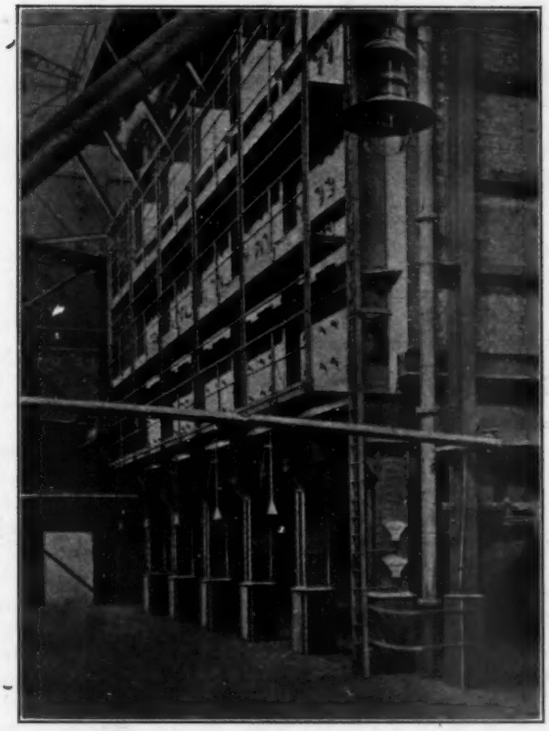
BUILT BY

The Western Gas Construction Co.

Fort Wayne, Indiana

Standard Water Gas Sets Purifiers Complete Gas Plants

GLOVER-WEST VERTICAL RETORTS



For the smaller medium sized plant as well as the larger plants. The small plant gets a like percentage of saving as the bigger ones, and on just as certain a basis.

Installation shown consists of Forty Glover-West Vertical Retorts. They solve the carbonization problems of the medium plant, reduce the cost of labor, and make possible the carbonization of every variety of coal.

WEST GAS IMPROVEMENT CO.
of America, Inc.
150 Nassau St. New York

COMPANY MEMBER OF AMERICAN GAS ASSOCIATION INCORPORATED

American Gas Journal

SIXTY-THIRD YEAR

Published Weekly by American Gas Light Journal, Inc., 53 Park Place, New York, N. Y.

ELBERT P. CALLENDER, Pres. S. G. KRAKE, Vice-Pres.-Treas. A. M. GLEASON, Sec'y

WALTER A. FAIRSERVIS, Editor

Ismar Ginsberg, Associate Editor

Contents of This Issue

Indianapolis Gas Rate Now $1.20 ..... **481**

Fire Drill Instructions **483**

Through Horizontal Benches of Sixes—By Vernon Baker **485**

Gasmen Helped Save Beardstown **489**

As the Journal Views It **491**

A Splendid Innovation

Financial Future Good

Developments in Gas Technology—By Ismar Ginsberg, B.Sc., Chem. Eng. **493**

Market Report **497**

News of the Gas Industry **498**

Subscription $3.00 per year, including postage, in the United States, Mexico, Cuba, Porto Rico, Hawaii or the Philippines; in Canada, $4.00; foreign, $5.00—Single Copies, 10 cents.

AMERICAN GAS JOURNAL. May 27, 1922. Vol. 116, No. 21. Published weekly by American Gas Light Journal, Inc., New York, N. Y. Entered as second-class matter Jan. 9, 1917, at the post-office at New York, N. Y., under the Act of March 3, 1879.

American Gas Journal

Formerly American Gas Light Journal

Vol. 116, No. 21 NEW YORK, MAY 27, 1922 Whole No. 3351

Indianapolis Gas Rate Now $1.20

Federal Court Impounds Funds but Recognizes Emergency

The biggest surprise of the many that have kept patrons and officials of the Citizens Gas Company, of Indianapolis, in almost constant suspense for many months during a period of reorganization stress in the company, appeared Monday, May 15, when a temporary injunction order was issued in the Federal Court at Indianapolis against the Public Service Commission of Indiana authorizing the gas company to collect $1.20 a thousand cubic feet for gas, the rate being raised from the 90-cent basis formerly allowed by the Public Service Commission, and which the commission recently kept in effect, following a hearing and showing of emergency need by the company.

The rate authorized by the Federal court is 5 cents less than the company petitioned for, when it sought before the Public Service Commission to obtain authorization of a rate of $1.25 a thousand cubic feet. Following the denial of the State commission, the company sought relief in the Federal court from the 90-cent rate order, entered by the State commission April 20.

For years it has been the habit of utility commissions to point to Indianapolis as an example of what can be done in supplying cheap gas. Even when the rate was raised a year ago it was felt that it was too low, and the action of the court confirms that opinion.—Editor.

The order of the Federal court was made by Judge Francis E. Baker, and Judge Samuel Alschuler, of the Circuit Court of Appeals, and Judge A. B. Anderson, of the Federal distric court for Indiana, the three judges sitting in the case because it involved the constitutionality of acts of State officers operating under provisions of a State law.

The new order created a stir in the Indiana city, and that stir was expected to radiate to many parts of the State, since much attention recently has been focused on the Public Service Commission and citizens, led by Samuel Lewis Shank, mayor of Indianapolis, have been openly upbraiding the commission for some of its orders. The Federal court reversal of the commission's lower rate order may be considered in many quarters to show that, after all, the commission may have been erring many times on the side of the public rather than on the side of the utilities.

The gas company, under the court order, is ordered to give a bond of $75,000 each month in advance to insure the proportionate refunding to consumers in case any part of the increase in the gas rate may be found on final hearing of the case to be excessive in meeting the cost of production and distribution of gas and giving a fair return on the company's property value. Judge Baker instructed that the new rate should be effective on May 20, which is the next billing date of the company, and that notice shall be made on the new bill informing gas consumers that the additional 30 cents added to the gas rate has been impounded by the court pending final settlement of the case. Should the rate established on final hearing be less than $1.20 the excess collected in the meantime from consumers will be returned, Judge Baker said.

The increase in the rate, it will be remembered by readers of the JOURNAL, represents a doubling of the old 60-cent rate, which was in effect for many years in the Indianapolis territory as a result of the operation of the big by-product coke plant of the Citizens Gas Company during times when coke sold readily at high prices. At one time, after the leasing of the Indianapolis Gas Company by the Citizens Gas Company, the rate was reduced to 55 cents a thousand cubic feet, but was raised again to 60 cents when the war came on. Then later, as a war emergency measure, the rate was raised to 90 cents a thousand cubic feet, through action of the Public Service Commission and this rate has been allowed to stand since.

The temporary injunction order in the Federal court was granted on a petition which charged that the 90-cent rate in force now is confiscatory and in violation of the fourteenth amendment of the Federal

Constitution, in that it serves to take the property of the company without due process of law. The company asked for authority to collect the rate of $1.25, which was denied by the Public Service Commission in its order of April 20.

In reference to the former order of the commission, by which the rate was increased from 60 cents to 90 cents, Judge Baker said, "The commission apparently took half a bite of charity instead of digesting the whole. So we will authorize the company to collect the other half."

Turning to counsel for the commission, Judge Baker continued:

"'This order is not intended to interfere with the current work and authority of the commission. The order means nothing except that 90 cents does not now pay the cost of distribution and production of gas in addition to paying a fair return on the value of the company's property. The power rests continuously with the commission to inquire into the affairs of the company. It may look into the company's books and accounts and inquire from day to day to determine the cost of production and distribution and what constitutes a fair return on the value of the property, or in other words, what will be a fair rental to the public for the service of the company. Every consumer will hold his monthly receipt as evidence that he is entitled to the 30 cents added to the rate, or any part of it not awarded to the company on final hearing of the case."

At the hearing the suggestion was made by counsel for the gas company that several months might be consumed in arriving at the facts involved and the suggestion was made that a special master in chancery be appointed.

Practically all discussion of the case was done for the court by Judge Baker. Judge Alschuler asked questions occasionally, while Judge Anderson spoke but little during the hearing, which continued about two and one-half hours. Judge Baker interrupted counsel for the Public Service Commission frequently while they were presenting arguments against an increase in the gas rate.

Unaccounted for 15.3 Per Cent

When A. B. Cronk, representing the commission, said that unaccounted-for gas in March, 1922, amounted to 15.3 per cent of the total sent out, whereas the average unaccounted for in 1920 and 1921 was only 7.2 per cent, Judge Baker asked whether the commission had any evidence to show that the company was wasting its product either through leaky containers or by permitting the theft of gas.

"You are setting up figures that charge the company with encouraging the stealing of gas," he said. "Certainly the company, like a merchant or business man, would take every precaution to safeguard its property and prevent losses."

Mr. Cronk replied that there appeared to be an unexplained loss of gas somewhere.

Speaking on the general duties of the Public Service Commission, Judge Baker said:

Commissions Are Guardians

"Utilities can be maintained only if they pay a reasonable return on their investment. Commissions should look on utilities as guardians if commissions are to serve their purpose. The public, through its commissions, has the right to hold the earnings of utilities down to a bank rate of earning, lower than the rate earned by merchants in private business, but it has not the right to have the capital of a utility eaten up in selling gas, for instance, at less than the cost of production. Millions of dollars in these utilities come from laboring people—women, children and orphans—and the companies should be dealt with by the commission in the light of a guardianship.

"Your attitude is to resolve every doubt against the company; to experiment at its expense. It is like cutting off a dog's tail one inch at a time, thinking that perhaps in that way it will not hurt. We are not expected to pay large profits to street car companies, gas companies and other utilities, but only a reasonable rental for their use. People, instead of complaining, should be glad to know they are getting the service at a reasonable rate. You should put rates up or down by conditions as they exist, and not on speculation as to what those conditions may be at some time in the future."

Mr. Cronk had introduced an affidavit of Lawrence Carter, assistant chief of the accounting department of the Public Service Commission, setting forth figures obtained from an audit of the books of the company for the year 1921 and for January, February and March, 1922. The affidavit was accompanied by exhibits showing the net production cost of oven gas at holder, cost of coal and realization on coke; gas made, sent to holder and accounted for; production data and coal received, tonnage and average prices.

Figures in the affidavit went to show that the total net operating revenue of the gas company for March, as shown by its audit, was $51,138.86, as compared with $74,617.50 as shown by the company's audit and $80,791.41 as shown by the commission's audit.

Arguments made for the commission, and based on the figures contained in the audit by Mr. Carter, were made to show that March was a fair average month and that future increase in revenues arising from the sale of coke and from other sources would enable the gas company largely to increase its revenues No effort was made to show that the revenues of the company in 1921 were adequate, inasmuch as the commission's order of April 20 had admitted that the 1921 revenues had been inadequate.

Coke Sales Have Jumped

As a result of the coal strike and the consequent demand for coke in the Pittsburgh district, the Citizens Gas Company has been enabled to sell 25,000 tons of its surplus stock of coke, more than 115,000 tons, at $6 a ton, according to an affidavit made by J. D. Forrest, secretary of the company, which was filed in the Federal court on the same date the order was handed down in the big case.

The coke cost the company $10 a ton, Mr. Forrest averred, and therefore it was sold at a loss of $100,000.

The affidavit by Mr. Forrest was in answer chiefly to the order of the Public Service Commission April 20, 1922, in which the petition for $1.25 gas was de-

(*Continued on page* 494.)

Fire Drill Instructions

Training Your Employees How to Meet an Emergency

The purpose of a fire drill is to get the occupants out of the building without confusion, and to train employees to leave promptly when the alarm rings, without stopping to get clothing or other valuables. A fire drill is of no value unless it is carried out seriously and under rigid discipline. One of the worst of American factory fires occurred in a building which had been equipped with a fire-alarm system in accordance with the State law, but where the employees took the alarm of fire as a joke and did not try to leave the building until it was too late.

Fire drills are also a valuable check on the adequacy and good condition of the exits and alarm system. Without those, a successful fire drill cannot be carried out.

The following suggestions for the organization and execution of exit drills have been promulgated by the National Fire Protection Association:

While it is true that these instructions are intended for office workers, there is much that can be applied to the plant. The instructions are concise and worth careful study.—Editor.

Organization and Duties

All factory exit drills should be subject to the direction of a supervisory organization constituted as follows: Chief engineer of exit drill, floor chiefs. room captains, stairway guards, searchers and inspectors.

Chief Engineer of Exit Drill

Should be some one whose position would command respect and insure compliance with all orders and instructions relating to the drills.

Duties of Chief Engineer of Exit Drill

He will have general charge of all matters pertaining to exit drills, practice maneuvers and organization, and will designate all persons to fill the positions above mentioned. He will fix the time for making drills and rigidly enforce measures of discipline for failure on the part of any employee to observe fully all the rules and requirements; by personal inspection he should see that overcrowding in workrooms, or elsewhere, is prevented and that sufficient space is given to aisles and passageways to permit quick access to all of the exits.

Floor Chiefs

Care should be exercised in the selection of these men or women, as upon them largely depends the efficiency and success of the drills. Where department foremen (or women) or factory superintendents possess the requisite qualifications their selection is to be preferred. It is important, however, that they have the trust and confidence of their employees generally, with a fair degree of self-possession and capability of speaking the language of the operatives.

Duties of Floor Chiefs

The floor chief shall have immediate charge of all employees or operatives employed on his floor in all matters pertaining to exit drills. He shall be held responsible for the enforcement of all rules and will report to the chief engineer any employee who willfully neglects their proper observance.

He shall see that each movement corresponding to the alarm signal is promptly and properly executed and shall personally supervise the sounding of the general building alarm on his floor. He shall be further responsible for the condition of all aisles and passageways, and will see that chairs, benches and stock are promptly removed to insure unobstructed passageways.

When, by prearrangement in drill practice or as a result of actual fire, it may be necessary to depart from the regular instructions as regards selection and use of exits, such change will be at the sole direction of the floor chief.

Room Captains

Whenever floors are subdivided into two or more rooms the floor chief will be assisted by the room captains. For floors of large area, the floor captains should designate a supervisor for every fifty employees, to assist in maintaining the necessary control and discipline. For these latter positions, it may frequently be desirable to make selections from the forewomen.

Room captains should be chosen from those high-

est in authority, preferably a foreman or work boss. The same general care in their selection should be exercised as indicated for the floor chiefs.

Duties of Room Captains

They should perform the same general duties in their respective rooms as are prescribed for the floor chief, subject to the latter's direction and supervision, excepting that they shall have no authority to change the assignment of exits, nor sound the general building alarm unless under direction of the floor chief.

Stairway Guards

For these positions men are to be preferred; they should be strong and alert, capable of acting quickly in emergencies. Two men selected from each floor should be assigned to each exit or stairway.

Duties of Guards

Guards are to be subject to the orders of the floor chief or room captains, and shall see that the march from the rooms and in descending the stairway is orderly and without crowding and at uniform speed, with careful observance of spacing between files. They shall be especially watchful to prevent trampling of persons stumbling or falling, and no conditions should be allowed which require a halt after the exit march has started.

Guards shall be stationed as follows: One guard on the room side of the door leading from the room, who shall se that the door is opened promptly after the first signal and is kept open until all the occupants have left the room and then that it be closed; and one guard on landing midway on staircase descending to the next floor below. Where stair exits have sharp bends or are poorly lighted, additional guards should be provided as required. All the foregoing officers should have a first and second assistant to help in the general work and to take charge, by seniority, in case of the absence of the officer.

Searchers

There should be at least one man and one woman searcher on each floor with alternates. They should be cool headed and strong.

Duties of Searchers

Searchers should, immediately after the signal, visit the toilet rooms and any rooms in which there may be occupants who cannot hear the signal. They must look out for any people who may become hysterical and faint.

Inspectors

An inspector selected from among the employees should be appointed to examine each morning the condition of all stairways, fire escapes and roof exits, if any, and to report immediately to the chief of exit drill any obstruction found thereon or any other unusual condition. In large establishments where many are employed or where the public is present, such as in department stores, the inspector should be uniformed, preferably with fire department experience. He should make regular rounds of the building and register on an approved watchman's clock.

He shall also see that all doors leading to stairways or exits open outwardly in such a way as not to obstruct the passageway, and will immediately report any found locked or obstructed to the floor chief or chief engineer.

During the winter season attention should be given to any existing fire escapes where exposed to accumulations of ice or snow, and whenever so found immediate steps should be taken for its prompt removal.

In addition to the above, provision should be made for a daily inspection and test each morning of the alarm system and of all signaling devices; report thereof to be made to the chief engineer.

Drill Exercise

Exit drills should be held as often as necessary, depending upon the design of the building, the character of the industry, intelligence of employees, etc. and should include everyone in the building.

It is advisable that the alarms announcing the drills for each trial should originate on different floors, in order to give different people an opportunity to learn how to act and have the signal sent when they discover a fire, and to afford practice in changing the order of precedence for possession of stairways or fire escapes, if the design of the building requires the latter to be used, excepting that the line of march may be so arranged as to take advantage of the additional time required in the descent of those from the upper floors, by dismissing such of the lower floors as would not delay the egress of the former.

A further exception to the rule should be made where buildings are divided by fire walls having protected openings which would allow the transfer of all the occupants on a given floor in the fire section to an adjoining section on the same floor in the building, or bny means of doors or a balcony to adjoining building or where provision is made for ascending to roof exits that may lead to safe retreat, either on or in an adjoining building.

In assigning stations, the first consideration is to man the aisles leading to each exit from the fire district and to prevent pushing and overcrowding. As far as possible, the aisle guards will endeavor to effect line formation, in order that the approach to the exit may be as orderly as possible. At all times special consideration should be given to women and children.

Employees who are not members of the section in which they may find themselves at the time of the test, upon the first signal should be at attention and assemble for the line formation. Where the public is present and fire conditions permit the line should be led off to other exits than those to which the public may be crowding.

Drill practice for tests should closely approximate military precision. It should be orderly and without confusion, and the movements should be simple and as few in number as possible. All movements should lead in the direction of the exits and follow in response to gong strokes.

(*Continued on page* 491.)

Through Horizontal Benches of Sixes

Written for the Fourteenth Annual Meeting of the Southern Gas Association, Greensboro, N. C., May 16, 17, 18, 1922

By VERNON BAKER, Chief Engineer and Vice-President, Russell Engineering Company, St. Louis, Mo.

Ever since most of us can remember, the standard type of coal gas bench for a small plant has been what is commonly known as the half depth bench of sixes with stopped end retorts.

This carbonizing unit has apparntly met the various requirements of small plants better than any other. It is comparatively inexpensive to install and is readily adapted for expansion. Being a small unit, the heats can be raised or lowered to accommodate a somewhat variable output without serious injury to the setting.

Up to a little more than a decade ago, the retorts were almost universally constructed of fire-clay material and made in one piece. In fact, all the refractory materials in the bench were of fire clay. This material was fairly satisfactory, as the operating conditions were not then severe—good gas coal was generally available at a fair price and good labor, working two shifts per day, was not hard to secure. We have, all of us, however seen the conditions governing the operation of gas plants change very materially. It is needless to enumerate them all as we are all quite familiar with them.

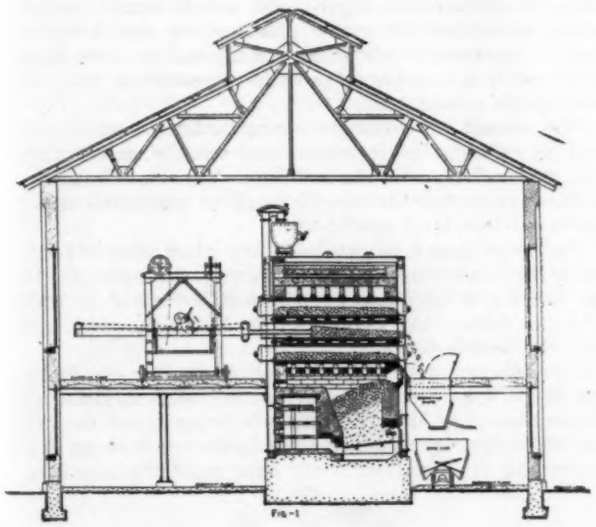


Fig. 1

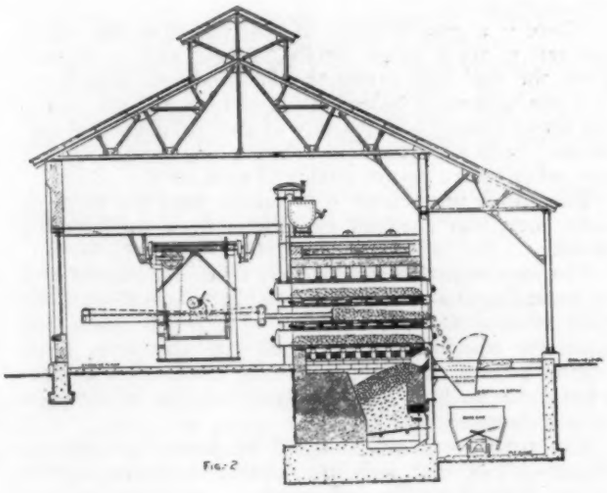


Fig. 2

These changes proved to be more of a problem for the company operating a small plant of a few benches of stopped end sixes than they did for the larger companies where gas was made in larger units, operated with labor-saving devices. To meet these changes there was considerable groping around for something different, some means for cheapening the cost of making gas and lessening the troubles of the gasman; all the time bearing in mind that the investment must not increase materially.

About this time silica material was coming into use for retorts and retort supports. The use of silica permitted the carrying of higher heats in the benches and, therefore, resulting in more coal being carbonized in the same size unit. There followed immediately, in consequence, the increasing of the furnace capacities and strengthening of the bench design to stand up under the increasing heats and loads carried.

There arose a need, however, for a new and different type of bench, something that would better meet the newer conditions confronting the gasman operating a moderate-size plant.

To meet this need numerous types were offered and are still being offered to-day by the various construction companies. These include inclines, verticals, horizontals, throughs and many special and unique designs.

The installation cost of some of these types is excessive for the purpose intended and their operation necessitates a considerable amount of expert supervision.

The one type that meets the newer conditions more nearly than other perhaps is the "through bench of sixes." The design of this bench is but a few steps beyond the older stopped end bench and is patterned after it and also embodies some of the good points of the larger through benches. This types involves no great initial expenditure of money, requires no special supervision and can be adapted to existing plants. It is especially suitable for new plants.

The chief reasons for the through sixes are the following advantages over the stopped end bench:

1. Larger thicker charges.
2. Longer carbonization period.
3. Easier and better means of handling the hot coke.

It readily follows that when the number of times per day each retort is discharged and charged is decreased and more coal carbonized per foot of retort, the total

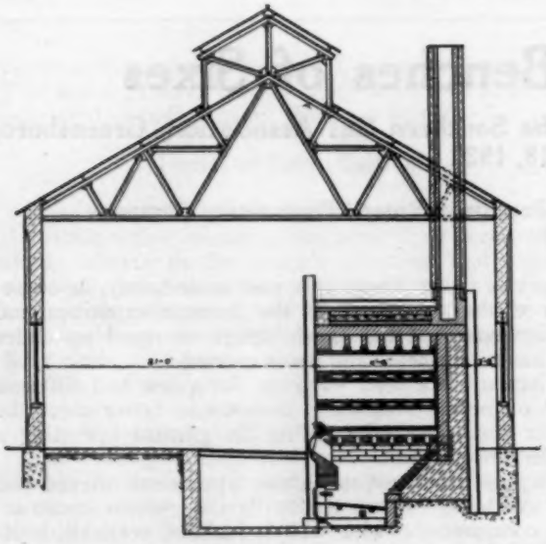


FIG - 3.

actual labor is lessened and the carbonization conditions are improved.

There is a greater mass of coal placed in the retort and left in for a longer period, the gas as it is evolved from the coal and passes to the standpipe. is exposed to a smaller area of heated retort surface, and the results are better quality and quantity of gas, coke, tar and ammonia. It is also practical to use a smaller size coal if desired or even a poorer quality if necessary.

The above being true, it is readily seen the through sixes meet the changed conditions to a considerable extent.

The importance of more nearly filling the retorts and of increasing the period of carbonization are alone sufficient reasons for the adoption of through sixes, but when the equipment which goes with this type, comprising pusher machine, quenching chutes, cars, platform elevator, etc., is also considered, the advantages are still more apparent.

The retorts are still charged by hand, but, as the charges are heavier, it is less difficult to obtain an even charge throughout the full length.

The operation of discharging the hot coke from the retorts is performed in a little more than a minute's time and requires only a small part of the labor formerly needed in dragging the coke out with rakes; the pusher operator stands some distance away from the bench and is not subjected to the heat as formerly.

Besides the advantages enumerated above, there is the additional advantage of being able to carbonize more coal on a given ground space.

Someone may naturally ask, "What are the limits of output determining the feasibility of through sixes?" Roughly, the limits are from three to eight benches or an ultimate output of from 225,000 cu. ft. of gas per day to 650,000 cu. ft. daily. Below the lower limit, it is more advisable to install stopped end benches as no labor is saved in such a small plant of throughs. For an output over that which can be obtained from eight benches, it will be more economical from the labor standpoint to build larger units such as horizontal through eights with power charging and discharging machines. This is especially true when a new plant of a definite capacity is being considered. When the ultimate capacity is indefinite, the limits both lower and upper as described above would be subject to special consideration.

Inquiries are often received as to the advisability of changing old stopped end benches into throughs. Many studies have been made with this in view, but on account of the large majority of stopped end benches being of the submerged type, i. e., half depth with pit, the full advantages of throughs cannot be realized and the cost is still considerable. In only one or two instances have old benches been remodeled into throughs. It is generally found on careful investigation that it is wiser to start a new battery with the new benches entirely above ground. This permits adequate furnace capacity and recuperation to take care of the increased amount of coal to be carbonized.

The ideal layout is shown on figure No. 1. This arrangement places the basement floor at the ground level and the operating floor about ten feet above the ground.

A modification of this design is shown on figure No. 2. This arrangement shows the operating floor at ground level and the coke pit on discharge side below ground level.

The first arrangement involves a somewhat higher initial investment as regards the retort house, but is much preferable for a new plant as the ventilation is better; the recuperator flues are accessible from both sides and it is possible to provide recuperation for preheating the primary air.

The second arrangement accommodates itself fairly well to existing retort houses and usually necessitates only minor changes in the building. Variations in either of these arrangements may be made or combinations of the two to suit local conditions.

The retort house, in case of a new plant, should preferably be constructed of steel framing throughout. In the North the sides and ends should be walled in with brick; in the warmer climate of the South the sides and ends can be left open.

The benches may be either three-quarter depth or full depth, i. e., the distance from top of foundation of benches to stage floor level may be from seven to nine feet, the minimum distance from basement floor on discharge side to stage floor is any case should be nine feet.

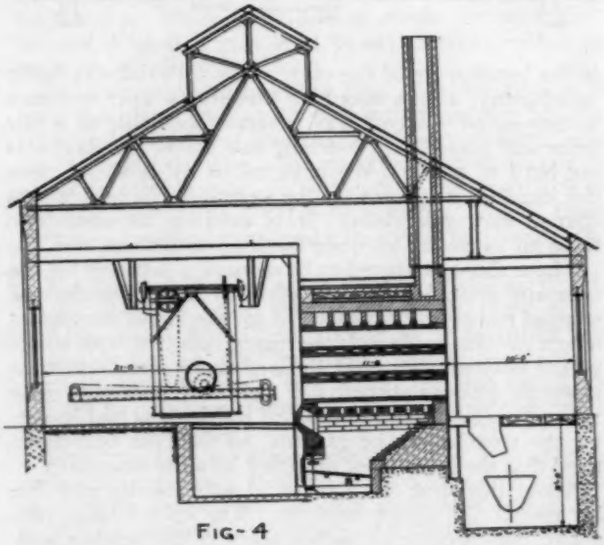


FIG-4

The retorts are usually eleven feet six inches long over all and of standard cross section 16x26 in. and constructed of silica as also are the settings.

The furnace and grates should be ample for the work intended. The recuperation should include preheating for both the primary and secondary air and also should include superheaters for steam which superheated steam can be mixed with the primary air and introduced under the grates to facilitate the operation of the furnace and to better the fuel economy.

The mountings and bracing should all be of heavy construction to insure long life. Scrubber pipes should be included in the equipment as they help greatly in reducing labor.

A single chimney, located outside the building, to serve an entire battery, with tunnel flue with waste-gas connections to each bench, is recommended

Ordinarily the coal may be brought up to the charging floor in charging buggies on a platform elevator. When a plant approaches a sendout of 500,000 cu. ft. of gas daily, it is time to consider coal handling machinery and a storage bunker. In all cases scales should be provided to weigh the coal charged into the retorts.

After the coal has been thoroughly carbonized, the resultant coke is discharged from the retorts by means of a hand-operated pusher machine. This machine may be designed to travel on rails set in the stage floor or on an overhead track. This machine is geared so that all its motions are accomplished without any great manual effort. It is a simple matter to attach a motor for operating the ram but until the plant is approaching the higher limit this will not be found necessary or economical.

If hot coke is to be used for fuel it can be deflected directly into the bench furnace from the retorts, thus conserving the sensible heat in the hot coke to help heat the retorts.

The balance of the coke can be quenched in quenching chutes or deflected into cars at basement floor and quenched in these cars. The important point to be kept in mind in quenching in either case is to spray a large amount of water on the coke in a very short space of time, less than a minute's time is required to quench the vided and sufficient water pressure is available.

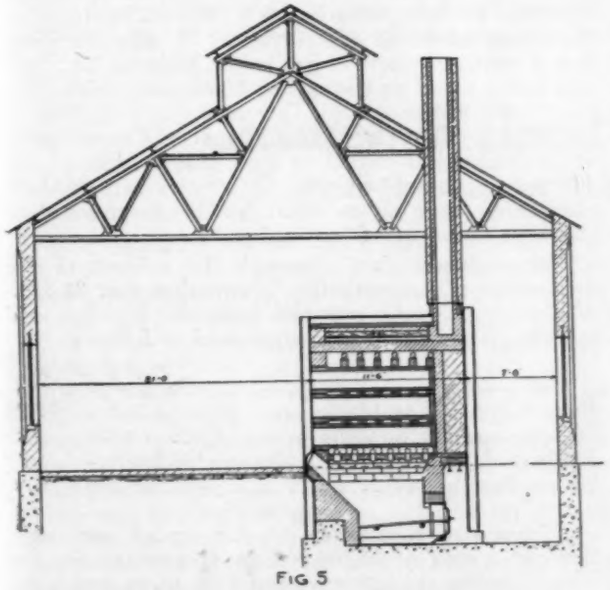


FIG 5

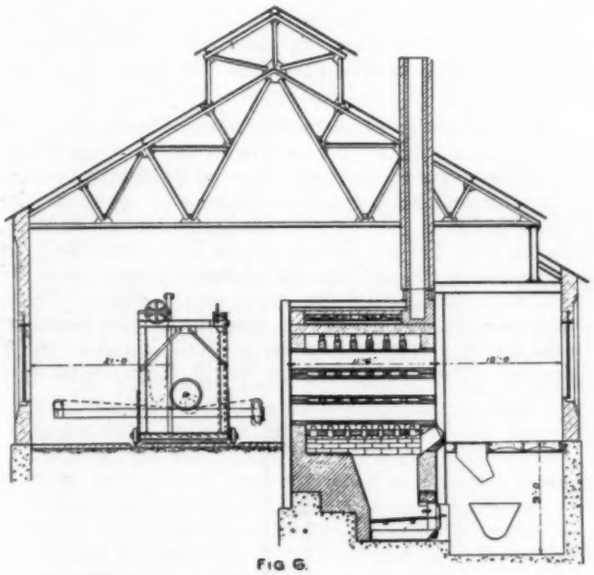


FIG 6.

With either method of quenching there is ample time in between charges to move the cars onto the platform elevator, raise to an overhead trestle and discharge the coke either into yard storage, into overhead bunker or to deliver it to the water gas house.

The above is a very brief description of the items comprising a plant of through sixes.

Sometimes it is desired to provide for having a through plant of sixes even before the sendout warrants operating the bench or benches as throughs. This provision for the future can be made with very little additional expenditure over that required for building stopped ends.

Figure 3 shows a stopped end bench of six retorts with furnace in front arranged for converting into throughs at later date The main arch is built through at the start and flues and chimney are also arranged with this in mind

Figure 4 shows the same bench after it has been converted into a through bench. This figure also shows the method of altering the retort house to accommodate the through bench. The equipment such as pusher, coke chutes, coke cars and elevator are all installed after this change is made.

Figures 5 and 6 show a similar method of arranging rear furnace benches for later converting into throughs. Figure 5 shows the bench in an existing house. If a new house is put up at the same time it should be built as shown in figure 6 at once.

Figure 7 shows a cross section of one of the more recent new plants of the through type of sixes placed in operation. This plant now includes six benches of full depth sixes and all of the equipment described above for an ideal plant.

A bucket elevator for coal and an overhead bunker of fifty-ton capacity is now being installed and also a platform scale for weighing the coal. This plant has been laid out for duplication at some future date.

This question will probably be asked: "For what section of the country are through sixes most suitable?"

The answer to this question is that this type of carbonizing unit is suitable for any place where it is advisable to manufacture coal gas within the limits described above.

There are in operation to-day about fifteen plants of through sixes. Four of these are in the Western States of Washington and Colorado, four in the Central States of Wisconsin, Michigan and Ohio, and seven in the Southern States of North Carolina, South Carolina, Georgia and Texas. These plants have been built at various times during the last eighteen years, most of them, however, during the more recent years. These plants vary in size from two benches to fifty benches. In the larger plants the benches are built in two or more batteries. The retorts vary in length from eleven feet

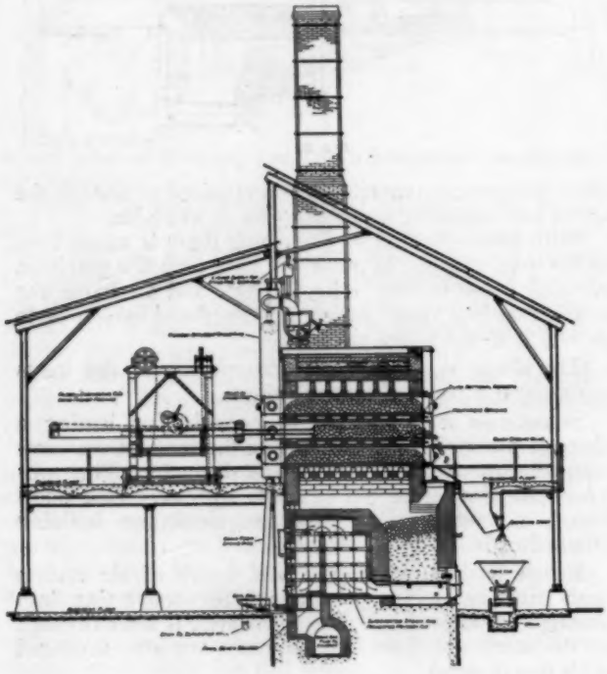


Fig. 7

to twelve feet three inches, the majority being eleven feet six inches long, and are mostly 16x26 in. in cross section. The furnaces and recuperators vary from one-half depth to full depth. All but two of these plants are hand charged and have hand-operated pushers. These particular two plants are equipped with power charging and discharging machines of the De Brouwer type. These two plants also have coal handling machinery and overhead platform elevators to raise the coal to stage floor level and the coke to an elevated trestle. A few of the plants have inclined cable haul for the coke.

An effort was made to secure working data from all of the plants in operation. Partial information was received from only about 50 per cent of these plants; therefore this data was not compiled. The results at the various places vary considerably, principally on account of some not being operated to capacity. Where the sendout permits the benches to be operated at full capacity, they show clearly that better gas yield and quality is obtained and a much better coke than from stopped end retorts. The actual weight of charges varies from 520 lb. to 750 lb. per charge.

The through bench of sixes is rated at 75,000 cu. ft. of gas per bench; this rating is low, however, for the average bench of this type easily carbonizes sufficient coal to give 880,000 cu. ft. of gas per day and when pushed can deliver an even greater amount without injury to the bench.

The usual time required for carbonization is six hours. Hot coke is generally used for fuel in the furnaces, through some of the plants use cold coke and several use coal very successfully.

The amount of fuel is generally estimated and therefore the figures given were not sufficiently reliable for publication.

The labor required to care for the through sixes shows a decrease when three or more benches are under fire.

Stopped end benches generally require one man per bench per shift. Rating stopped end benches at their maximum of 60,000 cu. ft. of gas per bench and two shifts of labor per day, this would give at best 30,000 cu. ft. of gas per man.

Through sixes are easily good for 80,000 cu. ft. or more of gas per bench. Four men per shift, two shifts per day, can take care of six benches of throughs, increasing the make per man per day to 69,000 cu. ft.

The reports received all indicate clearly, however, that even though all of them are not obtaining the maximum results possible this type of bench has proven very satisfactory and the increasing number of inquiries being received show that through sixes are becoming more and more popular for plants which have outgrown the stopped end retort bench size and have not reached the point where machine operated benches are unquestionably the proper type to install.

Startling Waste of Gas in Carbon Plants Is Shown in Report

New Orleans, La.—In a report of the natural gas survey by Benjamin K. Stroud, supervisor of the Minerals Division, and Frank T. Payne, engineer of the Department of Conservation, it was disclosed that a startling waste of gas in the Monroe, La., field was being made by the carbon-black companies. The report was given out by Governor John M. Parker and M. L. Alexander, Commissioner of Conservation in Louisiana, and tended to show that in spite of the enormous profits being made by the carbon-black companies, little or no effort has been expended to conserve the supply of natural gas.

The engineers first approach the subject of the production of gas with the information that 33,358,327,162 cu. ft. were received from the Monroe field in 1921. This supply was consumed as follows:

	Cu. Ft.	%
Burned for carbon black.....	31,284,471,422	93.78
Monroe and surrounding area.	1,940,216,096	5.82
Bastrop, La.	106,369,644	0 32
Union Parish fuel	27,000,000	0.08

"The above consumption," the report continues, "was at a rate of 91,500,000 cu. ft per day for the year. During the latter part of 1921 there was a decided increase in the amounts of gas taken. For a

period of the first nine weeks of 1922 the average weekly consumption was 766,850,000 cu. ft., or 109,550,000 cu. ft per day, an increase over the 1921 average of some 7,000,000,000 cu. ft. per year. The last report, dated March 10, from our Monroe office, shows a weekly consumption of over 800,000,000 cu. ft.

"The Southern Carbon Company has about completed arrangements to pipe gas to Alexandria and towns en route, a distance of about ninety miles. They plan to lay a twelve-inch line. The Southern Carbon Company is to deliver the maximum of 10,000,000,000 cu. ft. per day, for which it is to receive a minimum of—

First year	$ 805 per day
Second year	945 per day
Third year	1,050 per day
Fourth year	1,085 per day

"For the fifth to tenth years, inclusive, the company is to receive $1,102.50 per day.

"Alexandria will use a minimum of about 3,000,000 cu. ft. per day. If the contract is ratified, the Southern Carbon Company will be serving the city not later than December of this year.

"Carbon black for 1921 sold at Monroe for an average price of around 9 cents per pound or a total gross revenue from the 30,000,000 lb. manufactured of about $2,700,000.

"Gas at the well brought an average price of 2 cents per thousand cubic feet, making a revenue to well owners of $700,000 for the year. The average price for gasoline was around 12 cents per gallon, yielding about $550,000 for the year. This amount would amply cover the carbon-black pay rolls, leaving a profit of about $2,000,000 for 1921 to the companies.

"The people of the Monroe territory, therefore, received about $500,000 in pay rolls, the well owners received about $700,000 from the gas alone, and the carbon companies about $2,000,000 net for their product. Income from wells or gasoline plants cannot be credited to the carbon-black industry, inasmuch as this revenue would exist under any other operating condition.

"Attention has already been called to the fact that the Monroe field is now being drawn upon for a total of 800,000,000 cu. ft. per week, or 41,000,000,000 cu. ft. per year.

"On Feb. 8, 1922, Commissioner M. L. Alexander addressed a meeting of operators and citizens at Monroe for the purpose of further considering the status of the carbon-black industry. Mr. Alexander stated that under the present laws of the State the Department of Conservation had not the authority to put the carbon-black plants out of business and that he, as commissioner, could only regulate them.

"Mr. Alexander further stated that under present conditions he had created a monopoly in that he had consistently refused to allow new plants entry into the field, at the same time giving the old plants the right to operate; that in order to give all bona fide owners and operators the same privileges under the rules he would consider, under certain terms, applications for new plants to run one year from date of issuance of permits.

"The commissioner's decision is entirely logical for the present plants are in the position of drawing gas from the reservoir while the neighboring lands are left unprotected. Mr. Alexander stated also that, in his opinion, the next session of the Legislature should enact such laws as would definitely determine the future status of the carbon-black industry within the State.

"Since the Monroe meeting, there have been some eight or ten applications to erect new carbon plants and the commissioner has them under consideration at the time.

"From the foregoing, it has been definitely shown that the Monroe field is capable of supplying the necessary quantities of gas to justify the construction of a pipe line to New Orleans. The life of the field, however, depends upon curtailment or elimination of the carbon-black industry which, if permitted to continue at its ever-increasing rate, will in a short time destroy the field as a commercial factor.

Gasmen Helped Save Beardstown

Their Heroism and Skill Avert Big Flood Disaster

The following tribute was paid to the men of the Beardstown, Ill., company by the Peoples Gas Club News, the magazine of the Peoples Gas Light & Coke Company, of Chicago. The AMERICAN GAS JOURNAL is glad of the opportunity to spread this word to the entire industry:

"Actual heroism, not less than engineering skill and ability, displayed by the gas company men kept the people of Beardstown supplied with gas during the recent disastrous floods. Without gas the conditions would have been ten times more appalling. This flood was the highest ever experienced in history. The highest water level ever before reached was 22.4 ft.; that was in 1844. The crest of the recent flood, which was reached April 24, measured 25.1 ft. This water level is over six feet above the fire grates in the gas works. But the gasmen kept on making gas, thereby saving the flood victims from untold suffering; for every basement in the city was flooded; failure of the gas plant to keep on functioning would have meant depriving them of the only means of cooking food or of obtaining heat, and during the entire period of the flood the weather was exceptionally cold.

While the Levee Held

"Due to the nature of the business, gas plants are almost invariably located on low-lying ground; the natural tendency of gas is, of course, to flow upwards.

If they were placed on high ground it would occasion some difficulties to make the gas reach the lower levels. It is also an advantage to be adjacent to waterways, both on account of obtaining a ready supply of water and sometimes for transportation of slow-moving freight.

"Gas works are therefore frequently in the path of whatever floods may come. This is true of Beardstown. When it was seen that the rising water would soon reach the floor of the gas plant a levee of sand bags was constructed around the plant. As fast as the river rose this levee was increased in height, until the men were working in a sort of a coffer dam. Electric and steam pumps were quickly secured and installed to pump out seepage. With six feet of water ready to burst over them the engineers and stokers of the plant were in constant danger; a break in that levee would have left them little chance to escape instant drowning. But the levee held, the men kept on working, and the sufferings of the people of Beardstown were alleviated and life made possible for them by the courage and heroism of these gasmen.

"The Central Illinois Public Service Company shipped to Beardstown a large number of pumps, which, as the water receded, were put to work pumping out basements for any and all citizens, without charge, thereby making possible a rapid period of reconstruction. The Beardstown company also made early arrangements to repair and clean all gas ranges and other gas appliances that had been under water; this also without any charge to the customer.

"Some apprehension was expressed during the early stages of the flood as to the ability of the gas works to continue operation. That was April 18. On April 24 the high mark was recorded and the gas works were still operating. Just what all this has meant to our brothers in the gas business down there can be better imagined than described. It is another instance of the fact we have before stated that the Public Service man is animated by a sense of responsibility to the community which far exceeds any consideration of payment or wages which he may receive. When necessary he will face death in the discharge of his duties.

"To our brothers at Beardstown we extend the hand of fellowship in admiration of the way in which they met and discharged their duties.

"While the details have not reached us from other locations there are no doubt many other towns and cities where the public service man has performed extraordinary public service for the honor of his company and the good of the community.

"In Ottawa, we hear that when the rising waters put out the fires under the boilers Charles Bradley, chief enginer. Public Service Company, commandeered a locomotive, ran it onto the trestle above the coal shed, and thereby saved the day by insuring an ample supply of steam."

Petroleum Engineers

On May 15 the Colorado School of Mines held their commencement. Dr. Howard Monroe Raymond, president of the Armour Institute of Technology was selected to address the graduating classes, and in addition to that honor had the honorary degree of doctor of science conferred upon him.

The degree of petroleum engineer was conferred upon Howard Thomas Flint and Nathaniel Mueller.

John F. Weedon to Spend Summer Abroad

John F. Weedon, advertising manager of the Peoples Gas Light & Coke Company, of Chicago, Ill., with Mrs. Weedon, sails on June 23 for Europe, where he will visit England, Scotland and France. He was born in London, England and received his schooling at the same place. Being filled with the Britisher's common belief that the Almighty had made the world for his play-

John F. Weedon

ground he conceived the idea of traveling around the world. The "idea" was the only traveling impediment he had at the time It carried him as far as Chicago, and to a time when he did not have the wherewithal to satisfy his immediate hunger, so he took service with the gas company, running the pressure at the Twenty-second Street works for $1.50 per day.

He spent five years around the different works, 1889 to 1894, filling the positions of timekeeper, station clerk and, most of the time, filling the honorary office of private secretary to the chief engineer of the company.

In 1894 he was commandeered by the authorities at the office, as previous to his gas-house engagement he had had some slight experience with newspaper work and had kept in touch with shorthand and typewriting. For nearly twenty years he did statistical work, auditing, accounting work for the company. In 1914 he was transferred to the advertising department and has been there ever since. Editing the *Peoples Gas Club News* is his hobby—at least, one of them—having edited it since it was first printed.

As the Journal Views It

Removal Notice

The "American Gas Journal" is now located in the Dodge Building, 53 Park Place, New York City. Our new telephone number is Barclay 6736.

A Splendid Innovation

An innovation that was an instantaneous success was introduced at the recent convention of the Southern Gas Association when one of its sessions was open to the public and all of the speakers were public service commissioners from various States. The plan was well conceived, splendidly executed and productive of much real interest on the part of the public who filled the largest theater in Greensboro, N. C., where the convention was held, and who showed their appreciation for this excellent idea.

The association, in hammering home the idea to the public, used large advertisements in the local newspapers, and it was noticeable that the type of citizen that responded to the invitation was of a distinctly high caliber. An opportunity was offered, by means of this public session, for the customers of the local utilities to get an insight into the methods of the public utility regulatory bodies. The speakers gave excellent talks, and practically every side of the business was a subject of discussion. The meeting was a comparatively short one and in the time allotted to the different speakers many points regarding the difficulty both of utility operation and regulation were driven home. Even the most casual observer must have been impressed with the comments that were made following the session.

The action of the Southern Gas Association in taking this step can well be emulated by other bodies throughout the country, for it will do much to establish friendly relations and arouse interest in the problems of a gas company.

In passing, it might be stated that the association accomplished a very great deal of work and the convention was an extremely successful one from every standpoint. The papers, while few in number, were filled with meat, and the discussions which followed showed how well chosen had been the subjects. That they were interesting was shown by the close attention which was given, and many points were brought out that could not fail of being of real assistance to every gasman present. The Southern Gas Association during the past year has made very rapid progress under the guidance of its officers and has reached a point where it is a most important factor in the great Southland. The AMERICAN GAS JOURNAL extends to all the officers of the Southern Gas Association its most hearty congratulations

Financial Future Good

Close observers of the security market of Wall Street have noted a decided trend toward public utility securities recently, and several well-informed men have stated that there is available capital at reasonable rates for the extension of companies. This is a decidedly pleasing sign, for a great deal of money is needed by the gas industry to meet the constantly increasing demand. It is felt that the gas industry particularly is in for a period of growth and prosperity, unhampered by foolish regulations. If we are properly financed there is no reason to fear the future, for there can be no doubt but what the splendid work that is being done in every direction toward educating the public as to the value of gas is teaching the present consumer how to get the very greatest possible results and at the same time is impressing the non-user of gas with the fact that he is missing something that will add to his comfort.

Fire Drill Instructions

(*Continued from page* 484.)

The first alarm will consist of a series of strokes on a single-tap gong (twice repeated), indicating the floor from which the alarm is given. Upon the first stroke of this alarm all employees will immediately cease work, rise and, as far as possible, shut off power to machines.

Upon the first stroke of the drill gong each operative will remove the stock, chairs or benches nearest him in the aisles, placing same either under or on top of the work table or machine. Before the sounding of the second stroke all aisles and passageways

should be cleared of obstructions and the operatives should stand ready for line formation, which should be announced by the second stroke.

The next movement should be to march to the door of exit passage in single or double file. If in double file couples should link arms for mutual support, the women using a free hand to raise their skirts to prevent tripping themselves or those in their immediate rear, especially on the stairs, and each file will move forward, observing a uniform distance between couples to prevent touching. The line should start on motion signal of either the floor chief or room captain, and continue on to the stairway and descend, being subject only to the signals of the stairway guards.

No employee or other person should be permitted to attempt to secure clothing or street apparel from locker or cloak room.

Drill exercises should aim to bring into practice as often as possible all the signals as mentioned, to insure against possible misunderstanding at a critical time.

Upon reaching the street the line should be led away to a safe distance to prevent crowding and confusion around the exit, and for this purpose one of the room chiefs or test supervisors from the first or nearest street floor should be assigned to the duty of leading the line away from the building.

Elevator attendants should be instructed to take cars immediately upon the first sound of the building alarm to the floor indicated and hold themselves subject to the orders of the floor chief. In high buildings of the fire-resistive type, the operator should be instructed to take his elevator into the fire zone and receive passengers and then, if conditions favor such a procedure, discharge them only a few floors below the fire zone. Employees should be instructed to leave at that point and go down the stairways. If this procedure can be carried out much valuable time and many lives may be saved. The usual difficulty, however, is that all stairways and halls are crowded so that the elevators must run to the ground.

Assignment of Exits

The assignment of exits will depend primarily upon their number, capacity, and location and to some extent on their arrangement. An exit discharging horizontally into another building or into another section of the same building which is cut off by a fire wall having standard protected openings will accommodate as many persons as a separate and exclusive stairway of the same width for each story, and with the possibilities of danger greatly reduced

Where conditions permit, it would be desirable in drills to use the regular entrances for exit purposes on account of their familiarity to the employees constantly using them. In their selection, however, consideration should be given to possible exposure by local hazards, such as proximity to heating and power plants and any hazardous processes or locations connected with the premises. It is also important in arranging the regular exits to allow one or more, if possible, as entrances for firemen. The assignment of exits for different floors should first be based on approximate estimates of their relative discharging capacities, then as a result of actual tests based on those estimates, the distribution to each exit can be revised so that the time consumed will average about the same for all In these trials every available exit, including those reached by way of the roof, should be considered.

Frequently the arrangement of exits may be such as to permit a safer and more rapid dismissal from an upper floor by using the regular exits to one of the lower floors in order to reach an exit discharging on another side of the building. Combinations of this kind should be utilized wherever possible.

For the information of all employees, notices should be posted in each room giving full instructions in all matters pertaining to the drills. These notices should be printed in the respective languages of the employees.

The power-plant engineer, upon the first signal of the building alarm, should be instructed to shut off power to machines and shafting throughout the building, excepting in cases where it would affect the operation of the fire pumps, elevators or the lighting system.

How to Weigh Attached Irregular Parts

By W. F. Schaphorst

Occasionally it is desired to know the weight of some part or other on a machine, but the part cannot be detached easily for weighing and it is too irregular to compute with ease. In such case the weight can be found indirectly by weighing the water displaced by the part, if the part projects in such a way that it can be made to displace water.

For example: The writer once had to determine the weight of a flywheel governor weight which was made of cast iron and which could not be detached without removing the whole governor from the engine.

I turned the flywheel to such a position that the weight was at its extreme low point. I then procured a rectangular sheet-metal vessel and filled it with water. I weighed the vessel when it contained as much water as could be held in it.

Then I carried the vessel of water over to the engine and raised it so as to envelop the weighted end. Water was displaced, of course; but that is what was wanted. I raised the vessel until the water level cut the governor arm, being sure all the while that the vessel was still holding as much water as possible while raised to that height.

Then I removed the vessel and again weighed it, this time with the remaining water. The weight of the governor end was then computed in this manner:

The first weight was 45.5 pounds and the second weight was 39.25 pounds. The weight of the water displaced was therefore—

$$45.5 - 39.25 = 6.25 \text{ pounds}$$

Now, to compute the weight of the cast iron that displaced the water all that is necessary is to multiply by the specific gravity of cast iron, which is 7.207, or—

$$6.25 \times 7.207 = 45 \text{ pounds}$$

The remainder of the arm was of rectangular cross-section, whose weight was very easy to compute on this basis of 0.26 pound per cubic inch, which is the weight of cast iron.

In case other metal parts are to be weighed in this manner, here are the specific gravities of metals most commonly used in mechanical constructions:

Cast iron	7.207
Wrought iron	7.780
Soft steel	7.833
Steel castings	7.917
Cast aluminum	2.600

Should it be desired to know the volume of the piece of metal in cubic inches, divide the difference in weight (which is equal to the weight of the displaced water) by 0.0362. The result is the volume of the part in cubic inches.

This latter test will come in handy for finding the volume of any irregular substance that can be submerged in water without harm or without any absorption of water. Or, should one wish to find the specific gravity of coal, brick, rock, etc., this method, reversed, will serve the purpose. Weigh the rock, say, and then weigh the displaced water (which can be done by subtraction, as already explained). Divide the former by the latter and the quotient is the specific gravity of the rock or other substance.

Developments of Gas Technology

Important Information Gathered from All Parts of the World

By ISMAR GINSBERG, B.Sc., Chem. Eng., Associate Editor

Purification of Gas

The ammonia and sulphureted hydrogen which are contained in gases in which the proportion of the latter is less than that of the former can be effectively removed by washing with a thionate wash liquor. Such a process has been patented in Germany by the Gasabteilung G.m.b.H. (see German Patent No. 325,652). The wash liquor used for this purpose is circulated continuously and without regeneration, and is employed for washing successive quantities of gas. A little new liquor is added from time to time.

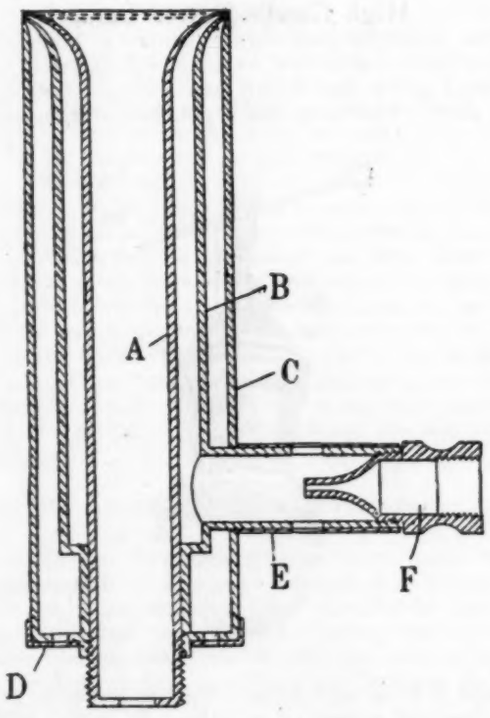
Gas for Signal Lighting on Railroads

On the London & Southwestern Railroad gas is used for lighting signals at various points along the right-of-way. These signals are of the concealed gas-lighting type. They are supplementary to the ordinary semaphore signals and are worked in conjunction with them. In one case the signal consists of a red-painted arm moving on a white background and illuminated by a two-burner gas lamp located slightly above and in front of the white plate.

Improved Gas Burner

The improved burner consists of three concentric tubes which have bell-shaped mouths or flared ends, as can be seen from the accompanying diagram. There are formed in this way three concentric spaces, the outer and inner spaces serving for the admission of the air and the intermediate spaces serving for the admission of the gas or the gas mixed with air. The inner tube is adjustable with respect to the intermediate tube, so that the annular space between their flared ends may be varied in thickness. The outer tube has means for adjusting the supply of air. In the diagram, F represents a mixing appliance of ordinary construction for mixing gas with air in the manner of a Bunsen burner. The combustion of the gases takes place at the top end of the annular space between the inner and the intermediate tubes.

The secondary air required for the combustion passes upwards through the inner tube and partly through the annular space between the intermediate and the outer tubes. The bell-shaped mouths enable the attaining of a cone of burning gas of extremely small thickness by drawing the inner tube down into the intermediate one. In the operation of the burner



a thin film of gas mixed with primary air issues forth between two streams of air. The air for combustion is partly warmed by the heat conducted downward through the substance of the outer and inner tubes respectively. In this way a more perfect combustion is secured than is possible when only cold air is supplied to the gas. For further details see British Patent No. 171,424.

Cluster Burner

The burner shown in the accompanying figure is designed on the cluster principle, with a superheated chamber, and is fitted with nozzles for three inverted mantles. The superheater chamber is made of aluminum. The burner is supplied in any color and possesses the following special features: Positive gas regulation and air regulation, special shaped mixing chamber for the proper admixture of air and gas, and a special shaped porcelain heat diffuser which directs the products of combustion away and permits pure air to enter the mixing chamber.

High Candle-Power Lamp

The accompanying figure shows a high candle-power lamp for indoor work, which is fitted with a vitreosil globe and which has a closed bottom and side slots. The lamp has a polished aluminum casting and is fitted with a three-light superheater to take the standard makes of mantles. It comes with or without a reflector. This lamp is of English manufacture and is finding great popularity in the gas-lighting field.

Working of Recording Calorimeter

At the present time there is a great deal of interest being shown in the change of the gas standard from the candle-power basis to one of calorific power or heating value. The determination of the calorific power of gas or any fuel by means of the regular Junker calorimeter is a process which takes time and skill, and the use of this apparatus for this purpose in gas plants which have numerous calorific determinations to make in a day would be entirely impractical. Recording calorimeters must be used under these circumstances. These instruments are very valuable aids to the gas-works chemist, and in the English publication *The Gas Engineer*, 1922, pages 14 to 16, there is given a very interesting and informative account of the mode of operation of the recording calorimeters. The article is illustrated with diagrammatic cuts which indicate clearly the arrangement of the various parts of the instruments and the function of each. The various factors which influence the determination are mentioned, and the method of overcoming them is discussed in the construction and use of the instruments.

Phenols from Alkaline Waste Liquors in Ammonia Works

The E. Posseyer Abwasser und Wasserreinigungs Gesellschaft, of Essen, Germany, has procured a patent (see British Patent No. 175,285) on a process of purifying waste liquors, particularly for the removal of the phenol contained in the alkaline waste liquors obtained in ammonia works. The water is allowed to settle to remove the solid matter, and then it is acidified by passing a part of it through the acid resins which are obtained in the purification of benzene. The water is then agitated with benzene to extract the phenol, and the benzene is then purified for further use by agitating it with caustic soda to remove the phenol. After the acid resin has been used for neutralizing purposes, the residue may be used as fuel or insulating material.

Indianapolis Gas Rate Now $1.20

(*Continued from page* 482.)

nied and the gas company was criticised for having accumulated a large surplus supply of coke and for having expended between $65,000 and $75,000 for office improvements and for other matters representing, in the opinion of the commission, mismanagement and reasons for changes in the general policy of the company.

In his affidavit Mr. Forrest said that the entire scheme of organization and management of the company, after providing for a limited return on the actual capital invested in the company, has been to give to gas consumers, through the rate charged for gas, the entire benefit of any earnings derived by the company. He said the company has never issued any of its stock except for cash, and in the case of the 7 per cent preferred stock of the company at 92 per cent of par or more, and of the common stock at par or more.

He averred that the purchasers of the $2,000,000 of the company's common stock actually paid into the treasury of the company a premium of $418,711.28 above par for their stock. Referring to the period of twelve years, between 1909 and May 4, 1921, when the company provided gas at 60 cents a thousand

cubic feet, Mr. Forrest declared that such a rate was only possible because the company, through the operation of its by-product plant, was able to make "substantial profits from the sale of coke, ammonia, tar and other by-products."

"The company," he declared, "continued its gas service at pre-war prices during the years 1916 to 1920, when the rates for other public service were increased from 50 to 100 per cent."

Further declarations in the affidavit were, in substance, as follows:

That a large demand for coke in 1920 resulted in a corresponding demand for coking coal, so that it was with difficulty that coal could be obtained in sufficient quantities to enable coke ovens to be kept in operation; that by reason of a shortage in car supply and the oversale of coal made by the mines, only a small part of the contract obligations were delivered by coal operators, and in order to have any assurance of adequate supplies it was necessary for the gas company to contract for a volume of coal much in excess of actual needs.

Early in Nov., 1920, there came a sudden and unforeseen decline in the demand for coke, so that outstanding contracts for coal were for quantities much in excess of the current demand for coke. Notwithstanding this situation, the company, "by virtue of its obligations to the consumers of gas in the city of Indianapolis," continued to manufacture coke throughout the winter of 1920 and 1921, and accumulated thereby a stock of more than 115,000 tons of coke at a cost of more than $10 a ton.

The affidavit averred that practically every by-product coking plant in the United States had a similar experience, and that the general economic conditions affected even more seriously a large number of commercial enterprises throughout the United States, the managements of which have never been criticised "as lacking in business discretion and sound judgment" after the manner in which the officials of the gas company itself had been criticised by the Public Service Commission.

Referring to the suggestion of the Public Service Commission that the company should have sold its coke at a price as low as $3 a ton rather than keep it in stock, Mr. Forrest averred that the company considered it would have been "bad judgment rather than good judgment to force said coke upon unwilling buyers, and at a financial sacrifice which might endanger the solvency of the company and thus of necessity affect disadvantageously the consumers of gas of said company."

Continuing, the affidavit set forth that "by virtue of the conditions which have arisen in the eastern Pennsylvania field growing out of the current coal strike, the production of coking coal in the Connellsville district has been greatly restricted and thereby the production of coke used by the blast furnaces in the Pittsburgh district has been so greatly curtailed as to create a new but temporary demand for coke, which has affected and is affecting plaintiff's situation. Contrary to all ordinary and usual current of trade, the company is now shipping coke to the Pittsburgh district to be used by the blast furnaces which are not able to obtain their customary coke supply from the Connellsville district. However, by reason of the large freight rates which must be absorbed in shipping coke back into almost the heart of the coking district, the company has been able to realize only $6 a ton f. o. b. cars, Indianapolis. Twenty-five thousand tons of coke have been so sold, which cost the company more than $10 a ton, and the company will be required to suffer and take a loss of more than $100,000 thereon, which loss will necessarily be reflected in the earnings of the company during the month of May, 1922, and succeeding months, as such coke is shipped.

Referring to the fact that under orders of the Public Service Commission any loss suffered by the gas company in the sale of coke must be taken at the time of the actual sale thereof, the affidavit pointed out that this same provision could not be regarded as a loss in anticipation of the actual realization thereof.

The Purchase of Oil

As to the criticism of the Public Service Commission regarding the purchase of fuel oil, Mr. Forrest's affidavit averred that the gas company had exercised "sound and intelligent judgment" by buying fuel oil at or below current market values. Concerning the improvements made by the gas company, which were criticised by the commission as being unwarranted in view of the financial condition of the company, Mr. Forrest averred that the improvements were imperative to accommodate gas consumers, the number of which had increased from 40,000 to more than 66,000 since the company's office first was opened, and also were imperative in order to make the office healthful for employees. In that respect, Mr. Forrest said, "While affiant realizes the necessity for such expenditure under the existing financial condition of the company is regrettable, yet the general changes made were imperative and could not have been put off without a continuation of the serious complaints of the public, which came to such office to be served, and of the numerous employees who were required to work in and about the office. No part of the expense of such work has been charged to operating expenses, and therefore such work has not in any wise contributed to the serious financial results of the last year's operations."

No Assurance of Future Prosperity

According to the affidavit there is no basis, from the standpoint of existing business conditions, to justify the hope expressed by the Public Service Commission that the company during the current year can derive from the 90-cent gas rate a return "even approximating a fair rate of return on the company's property."

It is admitted in the affidavit that the gas company's plant can be operated to better advantage now than in 1921 and early in 1922, and that gas can be produced at a somewhat lower cost than in 1921. There is no condition existing or likely to develop in the next twelve months, however, Mr. Forrest averred, which would permit the company to realize a return in excess of 3 or 4 per cent on the fair value of the company's property. Losses bound to result during the year in the sale of coke, he averred, would

reduce the profits of the company to from 1 to 2 per cent.

The affiant set forth that the prevailing cost of money for public utilities in the vicinity of Indianapolis during the year would be not less than 7 per cent and "in the case of the plaintiff company and many other companies, not less than 8 per cent." A higher cost to the plaintiff company, he averred, is due to the fact that the coking industry carried on by the company is subject to periods of large losses which "so seriously impair the company's ability to meet its fixed charges that an additional element of hazard is met in endeavoring to provide funds for said company.

"As a matter of fact," the affidavit said, "the entire surplus of more than $400,000 paid in by the common stockholders of the company was lost through operations in the year 1921 and because the company was required to give the consumers of gas a cheaper rate than it could afford to give. Under the rules which control and limit the charges of public utility companies, there is no opportunity by which the company can recoup itself for the loss to its capital account which has been suffered, and by virtue of such fact the standing and credit of the company has been impaired and the cost of money to it has thereby necessarily increased.

"Since the filing of the bill of complaint herein the mortgage bonds in sufficient amount to enable it to meet its taxes due May 1, 1922, and its $450,000 general mortgage bonds, due May 1, 1922, and thereby has saved any immediate default under its mortgage. That to secure such funds plaintiff was required to pay in excess of 8 per cent per annum therefor, and the sale of its securities at such rates was with the approval of the defendant Public Service Commission of Indiana. Such sale was accomplished only through the co-operation of bankers who had at prior times sold other securities of the plaintiff, and who feared the results of a default in the plaintiff's mortgage obligations."

A summary of the remaining parts of the affidavit follows:

"Affiant further says, basing his opinion upon his observation of the industry in which plaintiff is engaged and his familiarity with the conditions affecting its business and with present general business conditions, that if the rate charged by plaintiff company for gas be increased from 90 cents to $1.25 a thousand cubic feet, the net income received by the company in the ensuing twelve months, above operating costs and a reasonable allowance for depreciation, will be approximately $700,000, which sum is less than 5½ per cent upon the tentative value of plaintiff's property used and useful as set up in the complaint herein, and which value is much less than the actual value thereof."

Until April, 1921, the gas company charged a rate in Indianapolis of only 60 cents a thousand cubic feet. The Public Service Commission at that time granted a petition of the company for a 90-cent rate, declaring that an emergency then existed, and setting aside a provision of the company's franchise forbidding a rate higher than 60 cents.

The 90-cent rate has been in effect since April, 1921. A few weeks ago, the company petitioned for a rate increase, but after hearing the evidence, the Public Service Commission denied the request, severely criticised some of the policies of the company, and ordered the rate of 90 cents to continue in effect. The following day, the gas company filed the suit in the Federal court for relief from the Public Service Commission's order.

Indianapolis newspapers, commenting on the order of the Federal court, pointed out that the franchise of the gas company granted by the city of Indianapolis, which forbade a rate higher than 60 cents is not now in effect. Acting under authority of a law enacted by the last legislature, the company surrendered its franchise, and is now operating under an indeterminate permit from the Public Service Commission. The commission's order for a 90-cent rate had already set aside the franchise rate, however. The commission had issued this rate-making order on the authority of the 1913 public utilities act in Indiana and on a decision of the Supreme Court of Indiana, which permitted the fixing of emergency rates.

Buerau of Mines Official Visits Denver

H. F. Bain, Director of the Federal Bureau of Mines, stopped over in Denver, Col., en route to Alaska. He was asked a thousand and one questions about coal, oil and shale.

"There is coal in abundance up there," said Mr. Bain, "but with the stringent laws in force, developing capital has been scared away and we cannot expect rapid strides until that law is modified.

"Yes, the completion of the 467 miles of railroad from Seward to Fairbanks will help the transportation of coal wonderfully, but there is more needed.

"Northern Alaska seems to be an oil paradise, but it is doing no good because of the lack of transportation facilities.

"The oil leasing law of Alaska is bad. Under that law a man may stake out a claim by driving a stake. He is permitted two years to bore 500 feet, but if he fails he loses that lease. The two-year limit has done the mischief. Places in Alaska are so thickly covered with stakes that nobody seems to know who has the right of the lease and owing to these conditions capitalists do not care to linger.

"We are working faithfully on the oil-shale extraction and are aware of the various claims made for it, but it is a little too early to make any prophecies other than to say we hope to put oil shale on the map."

Dr. Bain admitted that he was of the opinion that the laws made were done in good faith to protect all concerned, but that the lawmakers had gone too far.

All right, let's turn back and correct things and quit worrying about Siberian oil fields and develop our own.

News from Texas Oil Fields

La Grange will be the center of all eyes for some time. A suit has been brought in the Fayette County Court for $5,000,000 against some New York parties for failure to complete drilling in a well near La Grange.

Barber's Hill, in southern Texas, is sanguine that it will soon have oil sufficient to astound the world. Oh, well, Barber's always did have astounding oil, if you heard them tell it.

Public Utilities Securities Market Report

Prices of Representative Gas Bonds

(Quotations furnished by The National City Company)

Company	Issue	Maturity	May 25, 1922 Bid	Asked
American Lt. & Trac. Co.	Five Year 6s	May 1, 1925	106½	107
Brooklyn Union Gas Co.	First Consol. 5s	May 1, 1945	93¼	95
Columbia Gas & Elec. Co.	First 5s	May 1, 1927	95	96
Consol. Gas, Elec. Lt. & Pr. Co. of Baltimore	First Ref. 7½s	Dec. 1, 1945	108½	109½
Consol. Gas, Elec. Lt. & Pr. Co.	General 4½s	Feb. 14, 1935	89	90½
Consol. Gas Co. of New York	Sec. Conv. 7s	Feb. 1, 1925	117½	118
New Amsterdam Gas Co.	First Consol. 5s	Jan. 1, 1948	80	81
Denver Gas & Elec. Co.	Gen. (now 1st) 5s	May 1, 1949	91	93
Detroit City Gas Co.	Gold 5s	Jan. 1, 1923	99¼	99¾
Equitable Illum. Gas Lt. Co. of Philadelphia	First 5s	Jan. 1, 1928	98¾	99¾
Hudson County Gas Co.	First 5s	Nov. 1, 1949	90	91
Laclede Gas Light Co.	Ref. & Ext. 5s	Apr. 1, 1934	91¾	92½
Louisville Gas & Elec. Co.	First & Ref. 7s	June 1, 1923	100	101
Michigan Light Co.	First & Ref. 5s	Mar. 1, 1946	90	92
Milwaukee Gas Light Co.	First 4s	May 1, 1927	90½	92¼
Pacific Gas & Elec. Co.	Gen. & Ref. 5s	Jan. 1, 1942	91¾	92½
Pacific Gas & Elec. Co.	First & Ref. 7s	Dec. 1, 1940	106	107½
Cal. Gas & Elec. Corp.	Unif. & Ref. 5s	Nov. 1, 1937	94¾	95½
Peoples' Gas Lt. & Coke Co.	Refunding 5s	Sept. 1, 1947	91	91¾
Chicago Gas Lt. & Coke Co.	First 5s	July 1, 1937	95	96
Portland Gas & Coke Co.	First & Ref. 5s	Jan. 1, 1940	89	91
Seattle Lighting Co.	Refunding 5s	Oct. 1, 1949	86	88
Southern California Gas Co.	First 6s	Nov. 1, 1960	94	95
Utica Gas & Electric Co.	Ref. & Ext. 5s	July 1, 1957	87	89
Washington Gas Light Co.	General 5s	Nov. 1, 1960	94	95
Western States Gas & Elec. Co. of California	First & Ref. 5s	June 1, 1941	88	89

New Offering of Western G. & E. Bonds

Los Angeles, Cal.—A new offering has been made of $504,000 Western States Gas & Electric Company of California ten-year 6 per cent gold notes by Blyth, Witter & Co. and Cyrus Pierce & Co., priced at 96½ and interest, yielding 6.90 per cent.

The notes are dated Feb. 1, 1917, due Feb. 1, 1927, and callable in whole or in part upon thirty days' published notice at any time prior to Feb. 1, 1925, at 101 and interest, and thereafter at 100 and interest. They are exempt from personal property taxes in California.

The Western States Gas & Electric Company owns and operates hydroelectric, steam and gas properties in central and northern California, supplying some thirty communities, including the cities of Stockton, Richmond and Eureka, having a present population estimated in excess of 107,000. Properties consist of two modern hydroelectric plants located on the American and Trinity Rivers; two modern steam turbine plants located at Stockton and Eureka, and artificial gas plants in both cities. The company has about 300 miles of high-voltage transmission system and extensive electric and gas distributing systems serving diversified agricultural, manufacturing and mining industries in central California.

The company has begun the construction of a new hydroelectric plant on the south fork of the American River with an initial capacity of 20,000 kw. This additional capacity will enable the company to provide for immediate and future power demands and to replace the power purchased from other companies, amounting in 1921 to 60 per cent of the company's output during the year.

Net earnings for the same year were in excess of twice the charges on total interest-bearing debt of the company.

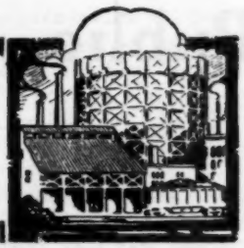
Public Utility Notes

Frost Gas Company, supplying natural gas in the western part of New York, has applied for a higher rate. Application says present rate of 40 cents a thousand is confiscatory and that under recent decisions of the Supreme Court it is entitled to a reasonable compensation for service rendered.

Nassau Light & Power Company has applied to the Public Service Commission for permission to issue $100,000 additional capital stock to be used to acquire the light and power system of Garden City Company. Application says the latter is unable to furnish current at the present high cost of labor and materials. The Nassau Company proposes, if application is granted, to furnish service at rates now prevailing in Nassau County.

Public Utilities Corporation, of Boston, an investment company, reports for year ended Feb. 28, 1922, gross income of $248,215, including $90,533 profits from sale of securities. After payment of charges and dividends on $500,000 preferred stock, balance to surplus was $141,224, making total surplus $494,963. During the year company reduced its notes payable by $545,000 and since the end of the fiscal year has paid off the balance of $314,000 collateral trust 6 per cent notes.

NEWS OF THE GAS INDUSTRY



Reduced Rates for Two More Georgia Cities

Atlanta, Ga.—Gas rates in Macon and Waycross were reduced 10 cents per thousand cubic feet by rulings handed down by the Georgia Railroad Commission recently. This gives Macon a rate of $1.65 and Waycross a rate of $1.90. A ruling issued against the gas company at Columbus, Ga., was dismissed, which means that the Columbus rate will remain as at present, $1.75.

Several months ago the Railroad Commission issued rules *nisi* against all gas companies in Georgia requiring them to show cause why their rates should not be revised, asserting that the cost of coal, oil and labor had gone down materially from the prices paid during the war, when the present rates were put into effect. Each company fought to maintain its present scale and several asked for increases, but the Columbus company is the only one so far that has broken even.

The commission announced decisions in six cases, and reductions were ordered in five of the six. Cities in which lower gas rates were ordered are Atlanta, Savannah, Valdosta, Macon and Waycross. The commission still has under consideration rates at Athens, Augusta, Americus, Griffin and Brunswick.

Blackstone Valley G. & E. Given Right of Eminent Domain

Providence, R. I.—The act granting the right of eminent domain to the Blackstone Valley Gas & Electric Company, passed by the General Assembly of Rhode Island in the closing days of the session, was signed by Governor San Souci and is now a law. The corporation can now extend its field of operation to any point in Providence County, with the exception of Providence and East Providence, which are excluded under the bill. The company seeks to broaden its field of operations and asked authority to condemn land in order to extend its service in the State and over into Massachusetts. Providence and East Providence objected to the original act, seeking to be exempt from its provisions. The Narragansett Lighting Company also objected to invasion of East Providence by the competitive corporation. At a hearing before the House Corporations Committee amendments were made to the bill which met objections, and the committee reported a substitute measure which is now a law.

Gas Company's Report

Albany, N. Y.—According to William G. Furlong, secretary of the Municipal Gas Company, this has been an extraordinary year for changes of services in the company's gas and electric departments. On Friday, Saturday and Monday, April 28, 29 and May 1 this year the number of service changes totaled 4,000. Of these 2,400 were for May 1. The number for April 29, 30 and May 1, in 1921, was about 3,000, or an increase this year of 33 1/3 per cent. A large number of the changes this spring were due to people buying houses and tenants deciding to move at the last minute, owing to unusual and unexpected increases in rents.

The acuteness of the housing situation accounts for a large percentage of the changes this year noted by the two large public service corporations of Albany.

Laclede Gas Rates Stand

Service Commission has issued an order continuing present rates for Laclede Gas Light Company for a period of thirteen months, from May 8, 1922. There are two applications pending; one asks reclassification of electric rates and the other seeks reduction of heat unit of gas. Hearing on these petitions has been set for May 10.

Officials Burn Bonds When Municipal Ownership Fails

Okmulgee, Okla.—By a vote of 577 to 3 the people of Okemah have approved of getting gas service from a private company rather than from a municipal gas plant.

A few hours after the votes had been counted, Mayor Paul Moonaw, with a crowd of citizens, built a bonfire in front of the city hall with $90,000 worth of municipal bonds which had been voted recently for the building of a municipal gas plant. The voting of the franchise to a private company by such an overwhelming vote wiped out the need for the municipal expenditure and the $90,000 load was taken from the city tax levies.

Boston Consolidated Will Buy Gas

Boston, Mass.—The Boston Consolidated Gas Company has petitioned the Public Utilities Commission to approve a contract whereby the New England Fuel & Transportation Company agrees to furnish it with gas from May 1, 1922, to May 1, 1923, at the rate of 45 cents per 1,000 cu. ft. The New England company now sells gas to the Boston Consolidated at 50 cents per thousand. The Boston company says that the contract price is less than the figure it would cost it to manufacture its own gas. The petition was taken under advisement.

Alvarado Soon to Have Gas Plant

Alvarado. Texas. — The city council has granted a franchise to the Farmers Gas Company, of Dallas, to install and operate a gas plant.

It is expected that gas will be available within ninety days after the final articles are signed.

Lafayette, La., Solves Light and Water Problems

Lafayette has been experiencing much trouble with the municipal light and water plant recently. This problem, however, was solved when the city trustees met to open bids and consider propositions for the lease of the plant and found only one such bid to be considered. The matter under consideration was an amended proposal filed by the local syndicate of taxpayers composed of J. C. Barry, W. A. Montgomery, Paul Krass, C. D. Caffery, W. D. Huff, M. E. Saucier and J. P. Colomb.

In this new proposal, the syndicate eliminated all objections to their previous proposition to voters for their approval at the next meeting of the trustees. If the leasing proposition is approved by the voters, the syndicate will take charge of the plant within ninety days.

The proposal in question contemplates a lease for a period of twenty-two years on terms as follows: Annual rental of $5,000 per year; immediate reduction of light and water rates to a maximum in each instance that will make these rates the lowest charged in Louisiana; maintenance and operation of the plant and various service systems at the cost of the lessees for the full period without liability whatsoever to the city or the taxpayers, and the surrender to the city, at the expiration of the lease, of the entire plant and service systems as remodeled, rebuilt and enlarged by the syndicate, without cost to the city; the property leased to get its street and municipal lighting and water service without charge up to a maximum of one-fifth of the total capacity of the plant; all other extensions of lighting, water and other services during the period of the lease to be made at the expense of the syndicate.

The objections which were presented against the former proposal were that no annual rental was to be paid and no extension of the service was given consideration. It was further pointed out that no mention was made to a specified amount of improvements in the plant. This recent proposition made provisions for each of these details and if the voters of the next meeting of trustees approve the lease the city will be relieved immediately of further expense and financial worry regarding the service, improvement and maintenance of the plant and the various systems. It will additionally be assured of a net profit of $5,000 per annum, a marked reduction in rates for consumers, the extension and enlargement of the municipal plant and service systems during the period of the city's development without danger of losing the plant through mortgages, bonds or depreciations.

The proposition is accompanied by a $10,000 forfeit deposit and will be guaranteed throughout the entire lease period by a surety bond. The syndicate offers every evidence of living up to its promises as it is composed of heavy taxpayers.

Bond Issue Authorized

Atlanta, Ga.—The Georgia Railroad Commission recently heard an application of the Atlanta Gas Light Company for permission to issue $393,000 in refunding mortgage bonds, and granted the application after an executive session. No one objected to the issue.

G. W. Brine, president of the Atlanta Gas Light Company, swore to the truth of statements made in the application, which set forth that $393,000 represented 85 per cent of the actual cost of improvements and extensions made by the company in a period extending from Oct. 1, 1920, to Dec. 31, 1921. On the first date a mortgage had been executed to the Girarg Trust Company of Boston, securing the contemplated and future issues of bonds, up to $5,000,000.

Replying to questions of Chairman Candler, Mr. Brine testified that the expenditures had been for permanent and needed improvements properly chargeable to the capital account. The extensions represented work in West End and Druid Hills, chiefly.

Gasser in Morehouse Brought in for Monroe Company

A gas well with a capacity of 5,868,000 cu. ft. per day was completed in section 29-20-4 of Morehouse Parish, near Monroe, La. This well is owned by the Ouachita National Gas & Oil Company, of Monroe and was brought in at a depth of 2,234 ft.

THE WESTERN UNITED GAS & ELECTRIC COMPANY has awarded contract to the U. G. I. Contracting Company, of Philadelphia, for the installation of one eleven-foot cone-top set of carbureted water gas apparatus and two waste-heat boilers to be installed at the Joliet, Ill., plant. Included in the water gas installation will be one U. G. I. automatic control.

Where Is the Greatest Oil Gusher?

Were the writer to make a bold statement there would be many to rise up and say, "I know one that beats that," and that is why I am not going to name any certain one as being the Great I Am, but rather name a few celebrities.

At Bibi Eibat, in Russia, one well gave practically three and three-fourths millions of barrels in thirty days.

The Dos Bocas well in the Tampico, Mexico, region gave 5,000,000 bbl. in sixty days.

If there are any to beat these records I do not know it. If you do, tell us.

Court Upholds $1.90 Gas Rate in Nassau

Mineola, N. Y.—Supreme Court Justice has upset the hopes of users of gas in this section who sought to have gas furnished by the Nassau and Suffolk Lighting Company at the old rate of $1.50 per thousand cubic feet.

Judge MacCrate sustains the Public Service Commission in its decision allowing the gas company to increase its rate to $1.90 with a service charge of 75 cents. The action to restrain the gas company was brought by Frank M. Clute, a wealthy resident of Garden City.

Judge MacCrate in his opinion upholding the Public Service Commission declares that the Public Service Commission has the right to delegate its powers to its agents. This opinion affects a wide territory as the villages of Hempstead Freeport and Rockville are interested in the action.

P. S. C. Grants Rate

Charleston, W. Va.—The Public Service Commission granted the Glenville Natural Gas Company authority to change rates temporarily at Glenville, Gimler County, and vicinity. The new schedule establishes a rate of 30 cents net for preferred consumers and 25 cents for others. The same rule that prevailed formerly, as to the discontinuance of service in case of a shortage, will still prevail among the consumers who obtained the 25-cent rate. The schedule is effective until Jan. 1, next.

Iron Oxide Used for Stopping Artesian Flow in Monroe Gas Fields

For the first time on record iron oxide has been used for the purpose of stopping the artesian flow in gas wells. H. C. Morris, trustee, has completed the pumping of twenty-five tons of iron oxide into the Sandidge well No. 1, in the northern limits of the Morehouse part of the Monroe gas field. This was done for the purpose of stopping the artesian flow at 500 ft. from breaking into the hole.

The successful use of iron oxide in the instance of Sandige No. 1, which resulted in the immediate cessation of the water, is a valuable contribution towards the solution of similar troubles in future drilling operations, not only in Monroe, but in other parts of the country as well.

Pacific Coast Gas Association Announces Fall Fashion Show

In the May monthly message of the Pacific Coast Gas Association, the following invitation is extended to the equipment manufacturers to exhibit their newest styles at the coming convention in September:

"A promenade is to be provided at the coming convention of the Pacific Coast Gas Association in September at Santa Barbara, where new styles in gas appliances, works, accessories and office equipment will be exhibited. This message is dedicated to such individuals or companies that have something to show off. A very commodious room, suitably located, has been set aside for the display. Knowing the instinct or interest of gasmen 'to look 'em over close up,' assurance is given that the exhibit will be well attended. In fact, the S. R. O. sign will have to be hung out as a permanent part of the show.

"To such concerns that deal in gas equipment, now is the time to trot out new novelties for general inspection. Anything is acceptable that has an atmosphere of style about it. This event is intended to serve as a coming-out party for debutantes. It offers a grand opportunity for the commercial folks with young hopefuls to break in on gas society. So all you pilgrims of progress, look over your line, and if you have something snappy in the flapper class, step out with it.

"A very original and clever idea has been outlined in connection with exhibits. It provides for a simple method for assembling, eliminating the work and inconvenience experienced by exhibitors in the customary convention appliance displays.

"Floor plan of the exhibit room and general rules and arrangements in reference to booking for the show will soon be available. Orders for space allotment are now solicited. For particulars communicate with the patron, C. B. Babcock, 768 Mission Street, San Francisco, or his assistants, R. G. Logue, Frank Weiss and Fred Pelle, or the secretary's office.

"Convention date—Sept. 19 to 22."

Muhlenberg Class Studies Gas Plant

Allentown, Pa.—The plant of the Allentown-Bethlehem Gas Company was examined recently by an interested group of students of the course in industrial chemistry given at Muhlenberg College by Prof. Howard Kistler. Through the courtesy of Mr. Woodring of the gas company, the students were given an insight into the entire process of manufacturing carbureted water gas as the process is carried on in the local plant, as well as the purification, measuring and distributing of gas.

Withdraws from Baseball League

Gardner, Mass.—The withdrawal of the Central Oil & Gas Stove Company Baseball Club from the Gardner Twilight League leaves but five teams in the league for the season of 1922. The Central Gas Club took exception to a couple of rules drawn by the directors and has decided to play independently for "advertising purposes," with most of its games out of town. The schedule has been readjusted and the league opened on May 15, as planned.

Peoples Natural Gas Company Appeals to Consumers for Co-operation

Pittsburgh, Pa.—The Peoples Natural Gas Company, of Pittsburgh, recently made an appeal to its consumers which really reached the people. It asked for co-operation in gas conservation and made it a question of personal saving. The appeal was as follows:

Service Planned Years Ahead.—In order that this community might have natural gas in sufficient supply this winter plans were laid three years ago.

Unfortunately, there is a large hazard about the gas business. One of every five wells drilled is successful; one of the remaining four is likely to prove profitable. Meantime, because wells soon exhaust themselves, new ones must be drilled all the time.

Gas Is Imported.—Practically all available territory in Ohio and Pennsylvania has been thoroughly drilled. Such increase in the supply as is possible must come from West Virginia.

That means a long transit—in this case about 250 miles. In order to force the gas through, enormous compressor stations must be built. These pick up the gas and push it along the pipe lines. Two such stations were built on the lines supplying this community last year.

With these are required more pipe lines—lines connecting new wells with compressor stations—one for each well. These, too, are frightfully expensive. Perhaps the worst feature is that when the wells fail these costly installations are only junk.

For Your Comfort.—These facts are only recited that you may see that widespread planning, great investment and constant effort are necessary to serve you, and that there is constant risk about this service.

We do our best. Now we come to you to ask your co-operation. With the scarcity of gas so evident, the present supply must be made to go further if all are to be served. That is your part of the program. When you put your best efforts into conserving gas, you are serving yourself. Every bit saved means better service to everyone.

Study Conservation.—Gas was put here for our use. Its right use is your privilege. Its waste is an injury to all—most of all to yourself. There is enough for all when it is divided right. There isn't enough for any if great waste occurs.

Our advertising is telling you how to save gas—for yourself as well as us—for you pay for the gas you receive and you pay for all you waste, as well as depriving others of their rightful share. Co-operate with us in gas saving. Our advertising will tell you how.

THE PEOPLES NATURAL GAS CO.

Supreme Court Holds 80-Cent Gas Rate Is Confiscatory

Washington, D. C.—The Supreme Court of the United States, through Justice McReynolds, handed down a decision on May 15 virtually disposing of the remaining litigation involving the question of the price of gas in New York. In line with its decision in the Consolidated Gas Company case some time ago, it held the 80-cent gas rates as fixed by the law of 1906 was confiscatory for the entire period of 1919 to 1920.

The question had been raised by various subsidiary companies of the Consolidated companies affiliated with it, such as the New York & Queens Gas Company, Central Union Gas Company, Northern Union Gas Company, New York Mutual Gas Light Company, Standard Gas Light Company, New Amsterdam Gas Company and East River Gas Company.

The court disposed of the matter briefly and held in effect the reasoning of the Consolidated decision applied.

In the same decision, in the case of Newton, Attorney General of the State of New York, et al., appellants. vs. the Consolidated Gas Company, of New York, and other cases of a similar nature involving the New York & Queens Gas Company, Central Union Gas Company, Northern Union Gas Company, New York Mutual Gas Light Company, Standard Gas Light Company, New Amsterdam Gas Company and East River Gas Company, the Supreme Court held the compensation allowed the master in chancery by the district court for the southern district of New York was too large. The court says the allowances were "certainly twice and three times what they should be."

The decrees of the lower court undertaking to adjudicate the master's compensation are reversed and the causes remanded with instructions as to how the compensation shall be fixed. In the case wherein the Consolidated Gas Company is appellee, the court allows not more than $28,750, which is half the sum heretofore allowed. In each of the other seven cases the compensation is cut to not more than one-third of the amount allowed. The total amount allowed by the Supreme Court is $49,250, as against $118,000 allowed in the lower court.

The decision so far as the gas rate is concerned does not affect the Consolidated Company, but means that about $10,000,000 which was impounded by companies other than the Consolidated will be turned over to those companies. The patrons of the companies will have to pay the existing prices. The court already has disposed of questions of rates so far as the Consolidated is concerned.

Engineer Finds Way to Lay Pipe, Leave Streets Intact

Santa Rosa, Cal.—August Ruess, construction engineer and expert of the Pacific Gas & Electric Company, recently performed a feat that marks a new era in Santa Rosa. He forced a three-inch iron pipe from the Rosenberg Building, beneath the entire width of Mendocino Avenue, and brought it out right at the wire pole on the west side of the avenue, ready for connecting to three large transformers which are to be utilized in furnishing light to the big Rosenberg structure.

This is the first time that a pipe has been laid in the streets without having to tear up the thoroughfare and dig a trench for holding the pipe, and then leaving a small ditch for passenger and other traffic to jolt over for many months. To do the trick as Mr. Reuss accomplished it a concrete pier was placed in the Rosenberg Building, and a fifteen-ton jack was placed against the pier to force the big pipe through the earth to the other side of the street. It came out just exactly where Mr. Reuss had designated it would emerge, and from there the pipe has been erected many feet tall toward the transformers overhead.

The large pipe carries a cable of 350,000 circular mill cable with a lead cover with 1,200 volts of insulation. There are three wires in the cable, and one on the outside, and it is the latest and best thing in the supplying of light or power, both of which will be supplied by the company named for the big structure now nearing completion. The distance which the jack forced the pipe through the earth beneath the streets was fifty-two feet, which is somewhat of an undertaking in itself. Thus the work was done with the minimum of labor, and without the inconvenience of having the street torn up, traffic diverted and holes left for vehicular traffic to bounce over.

Gas-Plant Improvements Nearing Completion

Canandaigua, N. Y.—"Canandaigua and its gas trouble are soon to be divorced."

Manager Thomas M. Cougevan of the Rochester Gas & Electric Corporation is speaking, and he appears to be backed by a bunch of cold facts.

Mr. Cougevan wants the public to prepare itself for a vast improvement in the gas service, which is to be made possible only through the expenditure of many thousands of dollars in alterations and additions at the South Main Street plant.

Work is now well under way on the last of a series of plant improvements which is expected to add greatly to its capacity. A large steel holder for gas is being constructed and by early summer, say, along when the canning season begins to get lively, all the new equipment probably will be working turning out more and better gas.

Jefferson City Orders New Water Gas Apparatus

The Jefferson City (Mo.) Light, Heat & Power Company is tearing out the old Springer water gas set that stood alongside of the five-foot double superheater carbureted water gas set and has awarded contract to the Gas Machinery Company, of Cleveland, Ohio, for a new six-foot double superheater carbureted water gas set complete with overhead operating floor, electrically driven generator charging equipment, gas valves, fittings and auxiliary equipment to take care of the increased business that is being obtained.

The old water gas condensers will also be rearranged and connected so as to improve the efficiency of the condensing and purifying apparatus to take care of the increased capacity which will be obtained with the new water gas set.

Spencer Gas Co. Will Serve Towns in Worcester County

Spencer, Mass.—The Department of Public Utilities, State House, Boston, has approved the plan whereby the Spencer Gas Company will take over the mains, meters and all other equipment of the Worcester County Gas Company, in the towns of Warren, Leicester, Brookfield and North, East and West Brookfield. The change is expected to bring about more efficient operation.

California Utilities Will Spend $10,000,000 in Carrying Out Order of Commission

Los Angeles, Cal.—The three gas-distributing utilities in this city and contiguous territory, the Los Angeles Gas & Electric Corporation, the Southern California Gas Company and the Southern Counties Gas Company of California, have taken steps to carry out the order handed down recently by the Railroad Commission by which the companies are ordered to expend large sums for the immediate improvement of their systems.

During the past winter peak period certain sections and territories on the systems of the three utilities have suffered gas shortages. These shortages were in districts where the growth has been extremely rapid, so much so that the gas utilities as well as the telephone and other public service corporations have been unable to keep pace with the growth.

The commission in February held a hearing in this city at which experts and engineers of the three companies attended. The plans for 1922-23 improvements and betterments were at that time laid before the commission. Since February the commission has sent its experts into the field and has written an order which, when carried out, commission engineers believe, will meet all demands for gas service during the coming winter.

By the terms of the commission's order the three companies will spend a total of practically $10,000,000 in improvements calculated to augment the 1922-23 winter supply of gas in Los Angeles and contiguous territory. Of this sum the largest expenditure will be made by the Los Angeles Gas & Electric Corporation, whose improvements will probably total $8,729,000. A large part of this sum will be used in the construction of large gas holder in Los Angeles with an estimated capacity of 7,000,000 cu. ft. A similar tank will be constructed by the same company in Pasadena, the capacity of which will be at least 5,000,000 cu. ft.

The Southern Counties Gas Company will install a 2,000,000 cu. ft. gas holder in Santa Monica which will take care of the gas demands at Santa Monica, Ocean Park, Venice and Culver City. Work on this holder has been under way since April 1, the foundation having been completed at this time. In addition to this improvement the company will increase the main and compressor capacity at various points along Santa Monica Bay.

According to the commission's ruling, the city of Glendale, located just north of Los Angeles in the San Fernando Valley, will be placed on straight natural gas, effective July 1 next. This supply of gas is furnished by the Southern California Gas Company, the gas coming from the Midway Gas Company's source of supply, 200 miles north of this city.

Both the Los Angeles Gas & Electric Company and the Southern California Gas Company must submit plans to the commission not later than July 1 next, outlining the extent of their improvements and the nature of the betterments for increasing the gas supply for the coming winter.

It is the belief that the plans of the latter company, submitted at this time, will detail the building of a large gas holder in Los Angeles with a capacity of at least 3,000,000 cu. ft. The company is required to make this improvement by the order of the commission and in addition will install compressors and other machinery to improve its service.

The investigation on the part of the commission which led to this ruling was made by Harry Masser, gas supervisor for that body in southern California.

Chemistry Teachers Given a Demonstration of Gas Making

Providence, R. I.—A demonstration of the manufacture of coal gas and water gas by E. H. Bauer, of the Providence Gas Company, was the feature of the seventy-seventh meeting of the New England Association of Chemistry Teachers at the Moses Brown School. Special apparatus was used in the exposition of the making of these illuminants by Mr. Bauer. After the meetings of the executive and business committees and lunch at the Moses Brown School, the association made a tour of inspection of the Providence Gas Company.

Baltimore Consolidated Plans Extensive Improvements

The Consolidated Gas, Electric Light & Power Company, of Baltimore, Md., has laid out a comprehensive program of improvements for this year. The work includes the installation of two twelve-foot sets of U. G. I. carbureted water gas apparatus and four U. G. I. vertical waste-heat boilers. The sets will be of the cone-top type and will have hopper-bottom generators, under which cars may be run to receive the ashes without the necessity of rehandling. Other features will include the U. G. I. automatic controls, the U. G. I. heavy oil nebulizing system, the new U. G. I. master valve and recording potentiometers. The contract for all of this work has been awarded to the U. G. I. Contracting Company, of Philadelphia.

New York State G. & E. Corp. Has Acquired Additional Properties

The New York State Gas & Electric Corporation, which furnishes gas and electric service in the cities of Ithaca, Norwich and Oneonta and gas service in Cortland, has acquired the properties of the Ovid Electric Company, furnishing electric service to the villages of Trumansburg, Interlaken, Ovid, Groton, Freeville and Dryden, together with intervening communities; the property of the Tompkins County Power Corporation which owns a power plant near Ithaca and furnishes power to the Ithaca Traction Corporation, etc., as well as the property of the Standard Light, Heat & Power Company, supplying electric service to the villages and towns of Sidney, Bainbridge and Unadilla.

Orders have recently been placed for a 3,000-kw. turbine and 500-h.-p. boiler, together with auxiliaries, pumps, etc., to be installed in the power plant at Ithaca while a transmission line from Oneonta to Norwich, which will connect the Oneonta, Sidney and Norwich plants, is now under construction.

Heavy Oil Nebulizing System for Wilmington Gas Co.

The Wilmington (Del.) Gas Company has contracted with the U. G. I. Contracting Company, of Philadelphia, for the installation of the new N. G. I. heavy oil nebulizing system. This system will enable the Wilmington company to utilize the heavy oils in its apparatus, which it has been impossible heretofore to make use of in carbureted water gas apparatus.

THE STANDARD GAS & ELECTRIC COMPANY in 1921 earned $5.09 a share, against $2.81 in 1920.